**CLAIMS**

1. A method of balancing thrust demands comprising the steps of:

   (a) controllably generating a number of thrust command signals for application to a plurality of thrusters;

   (b) comparing the levels of the generated thrust command signals in relation to a number of predetermined constraints;

   (c) identifying which of the thrust demands associated with said plurality of thrusters can operate in accordance with said predetermined constraints and which of the thrust demands associated with said plurality of thrusters can not operate in accordance with said predetermined constraints; and

   (d) balancing the various thrust demands such as to permit each of the thrusters to operate in accordance with said predetermined constraints.

2. A method as claimed in Claim 1, wherein said balancing step comprises shifting a predetermined amount of thrust demand associated with particular thrusters operating in accordance with said predetermined constraints to one or more of the thrusters which do not operate in accordance with said predetermined constraints.

3. A method as claimed in Claim 1 or Claim 2, wherein said balancing step is effected by application of a predetermined combination of null space vectors.

4. A method as claimed in Claim 1, 2 or 3, wherein said predetermined constraints are selected so that (i) the thrust demand associated with each of said plurality of thrusters is more than a predetermined value and (ii) the total mass flow associated with said plurality of thrusters is constant.

5. A method as claimed in any of the preceding claims, further comprising the step of modulating a number of forces/torques to provide said number of thrust command signals.

6. A method as claimed in Claim 5, wherein said balancing step and said modulation step are effected independently.

7. A method as claimed in Claim 5 or 6, wherein said modulation step is effected by means of a non-linear pseudo-inverse modulator.

8. A method substantially as herein described with reference to the accompanying drawings.

9. A spacecraft system adapted and arranged to carry out a method as claimed in any of the preceding claims.

10. A system for balancing thrust demands comprising:

means for controllably generating a number of thrust command signals for application to a plurality of thrusters;

means for comparing the levels of the generated thrust command signals in relation to a number of predetermined constraints;

means for identifying which of the thrust demands associated with said plurality of thrusters can operate in accordance with said predetermined constraints and which of the thrust demands associated with said plurality of thrusters can not operate in accordance with said predetermined constraints; and

means for balancing the various thrust demands such as to permit each of the thrusters to operate in accordance with said predetermined constraints.

11. A computer program which when loaded into a computer will enable it to operate in a system as claimed in claim 10.

12. A system substantially as herein described with reference to the accompanying drawings.